Do we still need to transport large volumes of water for micro-organic analysis?

- *Assessing the suitability of a method for the extraction and preservation of micro-organic pollutants in the field*

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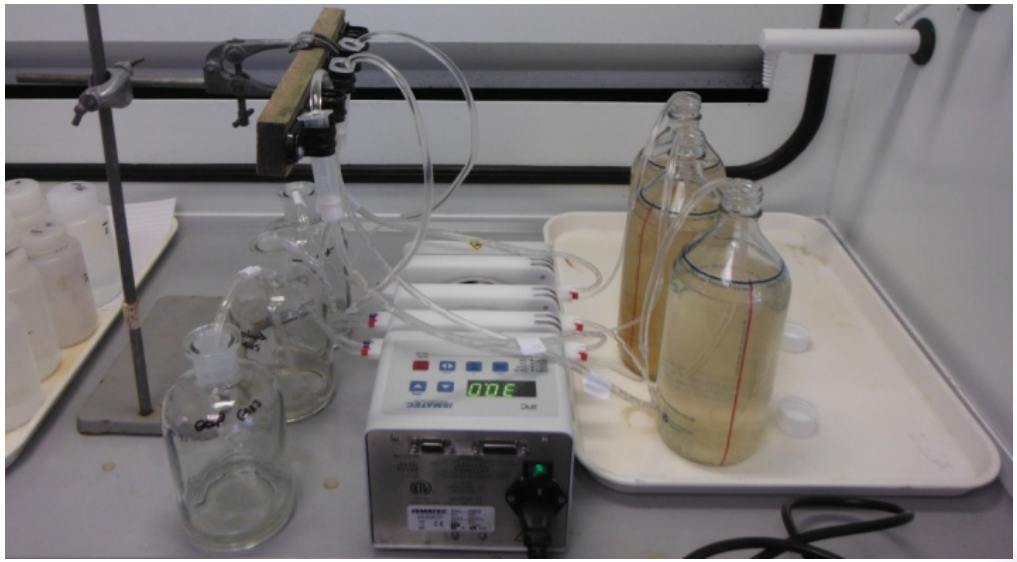
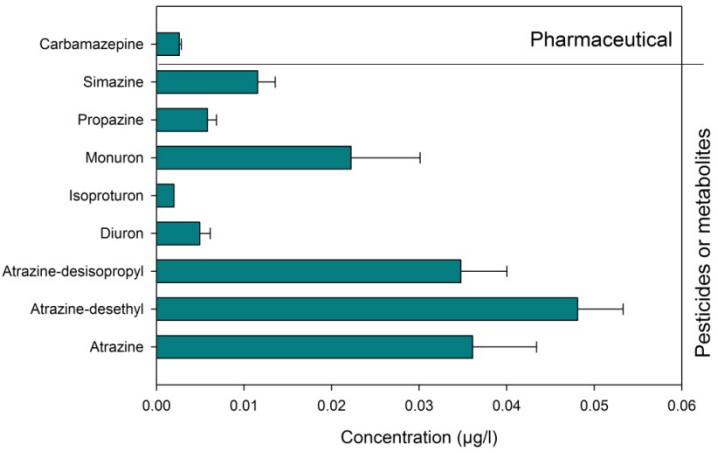
Introduction and background

- Broad screening of micro-organic pollutants are increasingly being used as tracers of anthropogenic contamination of surface and groundwater systems
- BGS have been carrying out research in the UK and overseas
- Samples are collected in 1 litre glass bottles – bulky to carry and expensive to ship
- The first step in LCMS analysis for the UK Environment Agency National Laboratory Service (NLS) is pre-concentration onto pre-conditioned sorbent Oasis® HLB cartridges
- BGS and NLS have piloted a method whereby samples are pre-concentrated onto cartridges in the field within hours of collection
- Sets of samples were collected from groundwater and surface water together with a blank sample to test the procedure. These were then split into duplicate replicates cartridge samples

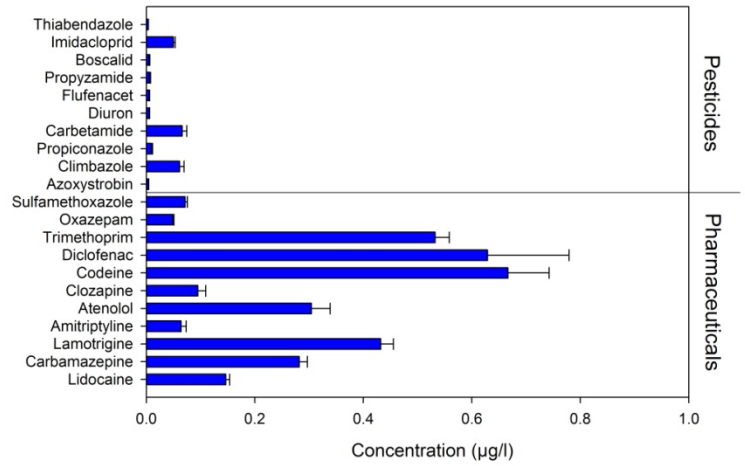


Initial results

Groundwater



Surface water



- To check the repeatability and the stability of the process the SPE samples were analysed in duplicate and replicate analysis was carried out over set periods of up to 1 month after sampling to check stability
- No compounds were detected in any of the blank samples
- Bar charts show the average concentration of all the cartridge and bottled sample for a site, the error bar is one standard deviation
- The results from each cartridge was compared to results from the original water sample analysed soon after sampling. This is shown for some of the compounds from one of the sites
- Promising initial results showing good reporduceabilty up to 4 weeks after sampling